99. FOODS AND BEVERAGES
426-18
1868
dust & bad grain
RECORDED

A.D. 1868, 22*nd* DECEMBER. N° 3912.

Treating Corn for Panification.

LETTERS PATENT to Alexandre Sezille, of Paris, Rue de Lancry, No. 10, Merchant, for the Invention of "IMPROVEMENTS IN TREATING CORN FOR PANIFICATION."

Sealed the 8th June 1869, and dated the 22nd December 1868.

PROVISIONAL SPECIFICATION left by the said Alexandre Sezille at the Office of the Commissioners of Patents, with his Petition, on the 22nd December 1868.

I, ALEXANDRE SEZILLE, of Paris, Rue de Lancry, No. 10, Merchant, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN TREATING CORN FOR PANIFICATION," to be as follows :—

This Invention has for its object an improved mode of preparing corn for the manufacture of bread without the process of grinding, whereby all nutritious portions of the grain are retained, and only the outer pellicle removed. For this purpose the corn is firstly steeped in water in which it is stirred about for several minutes so as to remove all dust and foreign matter, and any defective grains floating on the [illegible] are also removed. After steeping for about half an hour the

water is run off from the grain, and this is introduced into a sheet metal cylinder with rasp-like projections on its inner surface which serve to remove some portion of the outer pellicle. The grain is then introduced into a receptacle filled with water of a temperature of from 68 to 77 degrees Fahrenheit, about 400 lbs. of water being employed to about 200 lbs. of grain, so that there may be a certain quantity of water above the grain, about 2 lbs. of semi-dried yeast, and from ·15 to ·2 lbs. of glucose having been previously mixed with the water, this fermentable matter acts by degrees upon the grain, which, after about 20 or 24 hours immersion is ready for fermentation as bread, having absorbed from 50 to 70 per cent. of water. The water is then drawn off, and the grain is placed in a hopper, which by means of a distributer causes it to pass between one or two pairs of cylinders, where it is reduced to a pasty condition.

This operation has also for its object to reduce to small particles the second pellicle of the grain, as also that contained in the furrow thereof, so as to mix such particles intimately with the other portions of the grain. The pasty mass thus produced is then mixed with water to which the requisite amount of salt has been added, and the dough thus obtained is then treated in the usual manner for the manufacture of bread, the fermentation produced as before described being allowed to continue up to the required point before inserting into the oven. By this improved process about 300 lbs. of bread are obtained from 200 lbs. of corn, the bread being of a very agreeable and nutritive quality and of a much whiter colour than ordinary bread, as a certain amount of colouring matter is removed from the grain by the action of the yeast while it is immersed in water as above described.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Alexandre Sezille in the Great Seal Patent Office on the 21st June 1869.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, Alexandre Sezille, of Paris, Rue de Lancry, No. 10, Merchant, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-second day of December, in the year of our Lord One thousand eight hundred and sixty-eight,

thirty-second year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Alexandre Sezille, Her special licence that I, the said Alexandre Sezille, my executors, administrators, and assigns, or such others as I, the said Alexandre Sezille, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN TREATING CORN FOR PANIFICATION," upon the condition (amongst others) that I, the said Alexandre Sezille, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Alexandre Sezille, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

This Invention has for its object an improved mode of preparing corn for the manufacture of bread without the process of grinding, whereby all nutritious portions of the grain are retained, and only the outer pellicle removed. Corn contains only from four to five per cent. of indigestible pellicle; when this has been removed all the remaining parts constitute a nutritious aliment when mixed together; the practical application of this principle forms the basis of the present Invention.

The existing system for transforming corn into bread by reducing it first into flour has only rendered about eighty per cent. of the grain available for this purpose, which eighty per cent. under favorable circumstances give about 112 lbs. of bread to 100 lbs. of grain.

By the present improved process from 145 to 150 lbs. of bread are obtained from 100 lbs. of grain, giving an increase of about 33 per cent. over the ordinary process. At the same time the improved process in doing away with the grinding preserves a much greater quantity of gluten which in the ordinary system is lost by decomposition through heating during the grinding; also the improved mode of fermenting the

dough does not attack the gluten so much and renders it of a much whiter colour. The bread is therefore not only of greatly increased yield, but it is also more nourishing.

The improved process consists of the following operations:—

First Operation.—The grain is thrown into a receptacle filled with water and is stirred about therein for some minutes, when any defective grain will float on the top of the water and can readily be removed. The washing has also for its object to remove dust and other impurities. After the grain has been steeped in the water for about half an hour, the water (which will be found quite turbid even with the best grain) is run off. In place of steeping the grain it may also be merely subjected to the action of jets of water. By this first operation the pellicle of the grain is distended.

Second Operation.—The grain thus moistened is passed through a sheet metal cylinder or tube having a rasp-like inner surface whereby the outer coarser pellicle of the grain is removed. The second pellicle beneath which is the colouring matter is removed by passing through a horizontal sheet metal cylinder with rasp-like inner surface, inside which are moving stiff brushes which act on the grain and render it as white as rice. The pellicles may however be removed by any known apparatus suitable for the purpose.

Third Operation.—This operation consists in steeping the grain after removal of the pellicle in a vessel filled with fermenting liquor prepared as hereafter described at a temperature of from 68 to 77 degrees Fahrenheit, and in the proportion of about 200 lbs. of liquor to about 100 lbs. of grain, in order that the latter may be well covered with the water. The grain is introduced after the liquor has been prepared about from 18 to 24 hours, in order that this may have attained its full energy. The grain is subjected to the action of the liquor for about seven or eight hours, during which time the fermentable matter in the liquor acts by degrees on the grain, pentrating into it gradually and extracting to a great extent the colouring matter situated beneath the skin of the grain; the liquor which becomes of a reddish tinge is then drawn off. The fermenting liquor is prepared by mixing with water at a temperature of from 68 to 77 degrees Fahrenheit, about ten per cent. of fermented dough.

Fourth Operation.—The grain is then drained and is placed in a hopper, which by means of a distributer causes it to pass between one

or more pairs of revolving cylinders which reduce it to paste as it passes through; this being completed the requisite quantity of salt is dissolved in water and is then poured on the dough placed in a kneading trough; the dough is then kneaded so as to thoroughly mix all the particles thereof, and the operation of making bread is completed in the usual manner, that is to say, the dough is divided into loaves, turned, left for completion of the fermentation, and at the desired moment is placed into the oven, yielding a very white and nourishing bread. The sediment remaining at the bottom of the steeping vessel in the third operation can, after drawing off the coloured water be mixed with the paste passing from the crushing cylinders in the fourth operation. For making biscuits by this process the grain is not allowed to soak for so long a time as for bread, and in order to produce a paste of greater consistency it is passed twice through the cylinders; it is then treated in the ordinary manner. It is preferred to pass the dough through machines similar to those employed for moulding earthenware drain pipes in a continuous manner, and through dies imparting to the biscuit the desired width and thickness; the dough in passing through the dies will also attain a more homogeneous condition.

The above described improved system of preparing corn for bread has the further advantage of requiring considerably less motive power than the existing system, in addition to which the machinery, apparatus, and implements are of a much simpler character, and the different operations can be effectually carried on without the employment of specially skilled workmen.

Having thus described the nature of my Invention, and in what manner the same is to be performed, what I claim is,—

First. The before described combined process for manufacturing bread economically from wheat and all other cereals without the process of grinding, by softening the grain, removing the distended pellicles, crushing the softened grain, and working it for preparing bread or biscuit therefrom.

Second. I claim each of the before described operations separately, more particularly the steeping or watering of the grain producing a slight fermentation so as to distend the pellicle, the removal of the distended pellicle by passing the grain through cylinders with roughened surfaces, and by acting thereon by means of brushes, the steeping

the grain in fermenting liquor in order to soften it, and the crushing of the softened grain between revolving cylinders in order to reduce it to paste.

In witness whereof, I, the said Alexandre Sezille, have hereunto set my hand and seal, this Eleventh day of June, in the year of our Lord One thousand eight hundred and sixty-nine.

A^DRE. SEZILLE. (L.S.)

Witness,

CH. ARMENGAUD, J^e,
Ing^r. Civil,
Boulevard de Strasbourg, No. 23,
à Paris.

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